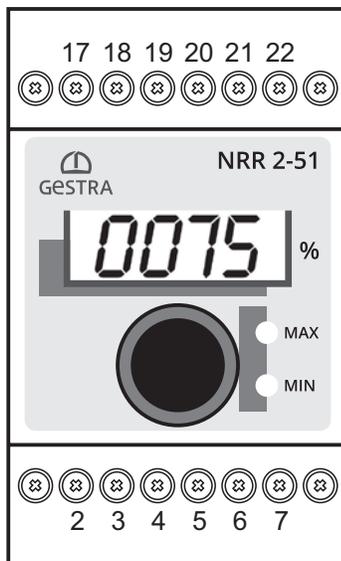


NRR 2-50



NRR 2-51

Level Controller

NRR 2-50, NRR 2-51

Description

The NRR 2-50, NRR 2-51 level controller is used in combination with the NRGT 26-2 level transmitter as a limit switch and water level controller, e.g. in steam boilers and hot water installations or in condensate and feedwater tanks. The level controller indicates when a MIN and MAX water level has been reached, and opens or closes a control valve.

The level controller can be combined with the NRGT 26-2 level transmitter.

Function

The NRR2-50, NRR 2-51 level controller processes the level-dependent current signal from the NRGT 26-2 level transmitter. In the controller, these input signals are standardized to 0 and 100% of the boiler measuring range and shown as an actual value on the 7-segment LED display.

Level controller NRR 2-50: The level controller works with an electrically actuated control valve as a 3-position stepping controller with proportional-plus-integral control action (PI controller). If the actual value deviates from the set point, the electric actuator is triggered by two output contacts, and two flashing LEDs indicate whether the control valve is opening or closing.

The controller can be configured for fill or drain control.

A further output contact indicates when a MIN or MAX water level is reached (the desired function is switch-selectable). After the off delay has elapsed, the output contact switches and the MIN or MAX LED lights up.

Level controller NRR 2-51: The level controller works with an electro-pneumatically actuated control valve as a continuous controller with proportional-plus-integral control action (PI controller). If the actual value deviates from the set point, it outputs a current of 4-20 mA as manipulated variable Y.

The controller can be configured for fill or drain control.

If the MIN or MAX water level is reached, after the off delay the MIN or MAX output contact switches in the level controller, and the MIN or MAX LED lights up.

Level controller NRR 2-50, NRR 2-51: Faults in the level transmitter or the electrical connection and setting errors are indicated as error codes on the 7-segment LED display. In the event of a malfunction, the MIN and MAX alarm is triggered.

If faults occur only in the NRR 2-50, NRR 2-51 level controller, the MIN and MAX alarm is triggered and the system is restarted.

Parameters can be changed and the MIN/MAX alarm simulated by turning the rotary knob.

To enable an external level display, the NRR 2-50 level controller is optionally supplied with a 4-20 mA actual value output.

The parameters can be protected from unauthorized access with a password. The default password cannot be changed

Technical data

Supply voltage

24 VDC, +/-20 %; PELV / CLASS2

Fuse

External M0.5A (medium time-lag)

Power consumption

4 W

Technical data continued

Connecting the level electrode/level transmitter (switch-selectable)

1 analog input 4-20 mA, e.g., for the NRGT 26-2 level transmitter, 2-pole with shield.

Outputs

NRR 2-50: 2 volt-free relay contacts, 8 A 250 V AC / 30 V DC $\cos \varphi = 1$ (control valve open/closed).

1 volt-free relay contact, 8 A 250 V AC / 30 V DC $\cos \varphi = 1$.

Off delay 3 seconds (MIN/MAX alarm, switch-selectable)

NRR 2-51: 2 volt-free relay contacts, 8 A 250 V AC / 30 V DC $\cos \varphi = 1$.

Off delay 3 seconds (MIN/MAX alarm)

1 analog output 4-20 mA, max. output load 500 ohms (manipulated variable Y).

Inductive loads must have interference suppression (RC combination) as specified by the manufacturer.

NRR 2-50: 1 analog output 4-20 mA, max. output load 500 ohms, e.g. for an actual value display.

Indicators and controls

1 rotary knob with integrated push-button for testing the MIN/MAX alarm and setting the parameters,

1 4-digit 7-segment LED display, green

2 red LEDs for MIN/MAX alarm,

2 yellow LEDs for control valve opening/closing (NRR 2-50 only)

1 4-pole code switch for configuration.

Terminal box

■ Terminal box material: Lower section of black polycarbonate (glass-fiber reinforced), front of gray polycarbonate

■ 2 x 8-pole terminal strips, removable separately

■ Max. wire size per screw terminal:

◆ 1 x AWG12 (4.0 mm²) solid, or

◆ 1 x AWG14 (2.5 mm²) stranded with sleeve, or

◆ 2 x AWG16 (1.5 mm²) stranded with sleeve

■ Terminal box attachment: Mounting clip on support rail TH 35 (according to EN 60715)

Electrical safety

Pollution degree 2, overvoltage category II according to UL 60730-1

Protection

Terminal box: IP 40 according to EN 60529

Terminal strip: IP 20 according to EN 60529

As a UL open type, the equipment must be installed in a control cabinet.

Weight

Approx. 0.44 lb (0.2 kg)

Ambient temperature

at power-on 32 ° ... 131 °F (0 ° ... 55 °C)

in operation 14 ° ... 131 °F (-10 ° ... 55 °C)

Transport temperature

-4 ° ... 176 °F (-20 ° ... +80 °C) (< 100 hours), only switch on after a defrosting period of 24 hours.

Storage temperature

-4 ° ... 158 °F (-20 ° ... +70 °C), only switch on after a defrosting period of 24 hours.

Relative humidity

Max. 95%, non-condensing

Level Controller NRR 2-50, NRR 2-51

Important notes

The NRR 2-50, NRR 2-51 level controller is clipped onto a support rail in the control cabinet.

The equipment is supplied with 24 V DC (PELV / CLASS2) and has an external 0.5A medium time-lag fuse.

This power supply unit must provide a level of isolation against dangerous contact voltages that at least meets the requirements for double or reinforced insulation in accordance with the following standard: UL 60730-1.

Protect the output contacts with an external slow blow 2.5A fuse to prevent them from welding together.

Switching off inductive loads produces surges that can severely impair the function of control systems. Connected inductive loads must therefore have interference suppression (RC combination) as specified by the manufacturer.

Use a shielded, multi-core TC-ER control cable with minimum wire size AWG18, e.g., OELFLEX CONTROL TM CY 5G1, to connect the level electrode or level transmitter. Max. length 328 ft (100 m).

Route connecting cables between items of equipment separately from power lines.

How to order and specify

Level controller NRR 2-50

GESTRA SPECTOR module

3-position PI stepping controller with MIN or MAX alarm

Output:

1 volt-free relay contact for MIN or MAX alarm

1 volt-free changeover contact for valve Open/Stop/Closed

Supply voltage: 24 V DC, 4 W

Level controller NRR 2-51

GESTRA SPECTOR module

Continuous PI controller with MIN and MAX alarm

Output: 1 current output 4-20mA for valve actuation

2 volt-free relay contacts for MIN and MAX alarm

Off delay: 3 seconds

Supply voltage: 24 V DC, 4 W

Dimensions

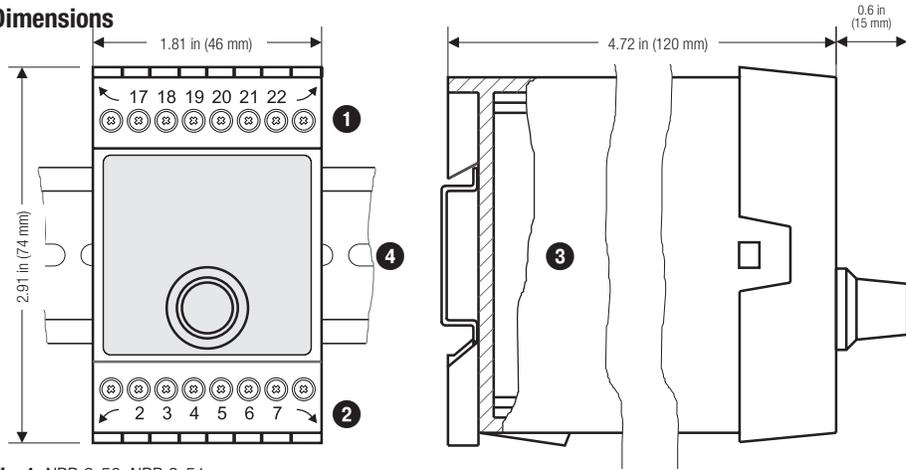


Fig. 1 NRR 2-50, NRR 2-51

NRR 2-50 electrical connection

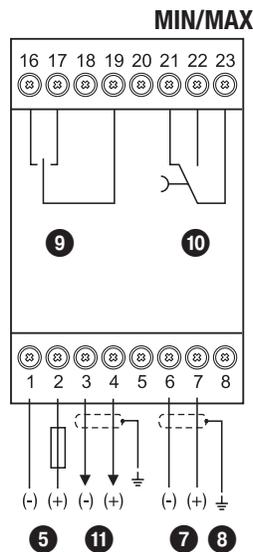


Fig. 2

NRR 2-51 electrical connection

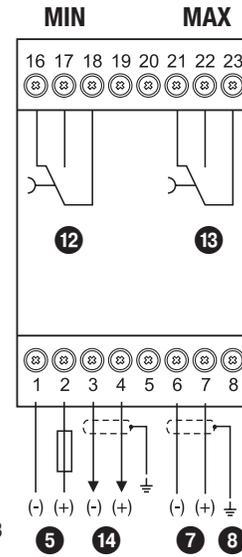


Fig. 3

Directives and standards

Please see our Declaration of Conformity and associated certificates or approvals for details on the conformity of our equipment and the applicable standards.

Improper use

There is a danger of death due to explosion if the equipment is used in potentially explosive atmospheres.

Do not use the equipment in potentially explosive atmospheres.

Key

- 1 Upper terminal strip
- 2 Lower terminal strip
- 3 Terminal box
- 4 Support rail TH 35, EN 60715
- 5 Connection of supply voltage 24 V DC with 0.5A medium time-lag fuse provided by customer
- 7 Level transmitter NRGT 26-2, 4-20 mA, with grounding point. Max. 3 NRS/NRR 2-5.. units can be connected (series connection).
- 8 Central grounding point (CGP) in control cabinet
- 9 Output contact for control valve actuation
- 10 MIN/MAX output contact, off delay 3 s
- 11 Actual value output 4-20 mA
- 12 MIN output contact, off delay 3 s
- 13 MAX output contact, off delay 3 s
- 14 Output 4-20 mA, manipulated variable Y

Please note our general terms of business.

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